

SPECIAL FOCUS PAPER

Gamified Mobile Learning Strategies in Corporate Training: A Review of Benefits and Risks

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ABSTRACT

The increasing emphasis on employee engagement, productivity, and skill development by contemporary businesses makes gamification an innovative solution for training programs. This review adds to existing knowledge about using gamification and mobile learning and recommends effective strategies to help organizations improve their training approaches. The research design employs a qualitative study using thematic analysis and explores the growing use of gamification. Employing a comprehensive approach, the research adopts a critical lens and identifies potential risks that can lead to over-competition, stress, and employee misalignment. The analysis will identify key themes and patterns to draw a co-occurrence map and create a deep understanding of related keywords. When strategizing corporate training to suit current industry needs, findings are significant for employers, organizations, and researchers. Researchers will get a detailed direction that can help pursue further research into different dimensions of gamification and mobile learning. This review suggests further case-based studies to identify and implement appropriate action.

KEYWORDS

game elements, gamification, corporate training, leaderboard, employee engagement

1 INTRODUCTION

Gamification refers to using game elements in non-game contexts. With recent shifts in corporate contours, notably the COVID-19 pandemic, prioritized remote learning, bottom-up leadership models, emphasis on closing the skill gap, and a renewed focus on employee engagement, gamification strategies have garnered significant attention among researchers and corporate leaders. In recent years, gamification has been employed in different settings, including banking, education, sports, and psychology, and mobile gaming applications have been found to enhance participants' engagement, motivation, and commitment. The growing use of mobile devices can also be considered a notable aspect of mobile gamification

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as an innovative strategy to boost employees' productivity and performance in the corporate sector.

While the literature on this topic is relatively less extensive, scholars have unanimously agreed on the benefits of mobile learning gamification in making learning more enjoyable and enhancing employee engagement. The published studies have differentiated between traditional and gamified learning strategies and have identified the most prevalent game elements and their impact on employee learning.

This study contributes to the existing research by providing a few novel dimensions. First, this study emphasizes not only the positives of gamification but also acknowledges potential risks and strategies to mitigate those risks. This critical lens makes this study quite comprehensive. Secondly, the research identifies the association between mobile learning gamification and employee dimensions, i.e., employee motivation, engagement, and performance. This approach makes the research specific to human resource management, providing corporate leaders and HR professionals with effective gamification strategies they can adopt to improve employee performance. Finally, this research aligns frequently-mentioned game elements with different personality traits to explore how those game elements could impact an individual's personality and mediate the positive or negative relationship between gamification and employee dimensions.

2 MATERIALS AND METHODS

This systematic review has employed the guidelines given by Kitchenham [1], consisting of three phases:

- Planning
- Conducting the review
- Findings and analysis

Planning the systematic review required identifying repositories of scientific articles and a review protocol to identify the search needs accurately. It was necessary to align the study with relevant theories, experiences, and corporate training activities. The research questions for the information search are mentioned in Table 1.

Table 1. Research questions for literature search

ID	Search Question	Relevance
RQ1	What are the benefits of gamification in corporate training from the perspective of employees?	To identify the benefits of employee performance, job satisfaction, knowledge sharing, employee productivity, and other dimensions of employee behavior in organizations.
RQ2	What game elements have been identified in the literature, and how do they impact training outcomes?	To identify various game elements that have been found to have positively benefited employees.
RQ3	What are the risk factors in using mobile gamification techniques for corporate training?	To assess the limitations of gamification and explore strategies to mitigate the risk of gamification in corporate training.

The second phase, conducting the review, began on April 15th, 2025, with the interconnecting terms "mobile gamification," "gamification," "corporate training," "game elements," "employee performance," "employee productivity," "job satisfaction" in the following databases: Research Gate, Science Direct, Scopus, Elsevier, and Springer Link.

Later, the search was refined using BOOLEAN AND and OR operators in combination with the terms "workplace," "mobile learning," "strategies," "techniques," and "performance." The search results obtained from springer link did not

contribute to the study and were hence dropped. Other searches provided a good idea of the combination of words that could have proved effective for the study.

The systematic search continued, limiting the publications done between 2019 to 2024. The combination of words that produced the best results is shown in Table 2.

Table 2. Literature search strings

Question	Search Strings
RQ1	((GAMIFICATION AND CORPORATE TRAINING) AND EMPLOYEE) AND PERFORMANCE)
RQ2	((GAME ELEMENTS AND TRAINING) AND EMPLOYEE) AND OUTCOMES)
RQ3	((GAMIFICATION RISKS AND) AND STRATEGIES) AND NEGATIVE OUTCOMES)

Inclusion and exclusion strategy. We decided on the following criteria of inclusion and exclusion as per the instructions mentioned for scoping reviews.

Types of participants. We did not keep any bars and included different research designs. Given the paucity of primary literature on the given topic, we also included a few published reviews to provide a detailed overview.

Concept. We included qualitative, quantitative, Delphi, and mixed-method studies, reviews, and conference proceedings to assess the concept of mobile gamification in corporate training. We excluded articles that were not peer-reviewed. We also excluded debates, personalized opinions and perspectives, editorials, comments, essays, and pre-proofs.

Context. We included relevant studies irrespective of the place where they were conducted. The primary aim was to identify the literature on gamification and corporate training and to ascertain an association between these two constructs in the context of employee performance. We hope to universalize our findings and did not focus on any particular country or area. Moreover, this phenomenon is relatively new, so few studies have been conducted in any specific nation. Doing so would have excessively limited our choice of studies, which could have impacted the generalizability of outcomes. Articles that discussed gamification in the context of education, security awareness, and sectors other than corporate training were excluded. We followed PRISMA-ScR guidelines to conduct the review (see Figure 1).

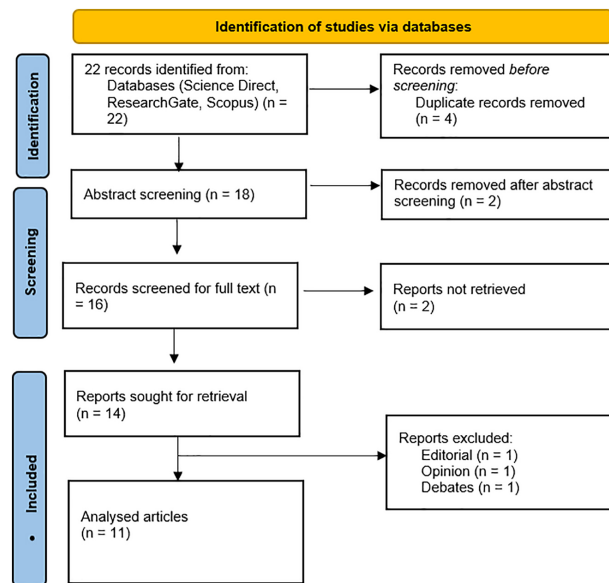


Fig. 1. The PRISMA chart

The PRISMA flowchart exhibits the complete scanning and filtering of articles for this review. The first filter was related to reading the title and the abstract, and two records were removed after applying this filter. The second filter was associated with reading the content, and three records were removed because one record was a debate, one was an opinion, and one was an editorial. After complete screening, 11 articles were selected for the final review.

3 RESULTS

The 11 articles studied showed a variety of results and relationships (refer to Table 3).

Table 3. Summary of results

Serial Number of Reference	Authors and Year of Publication	Research Design (Sampling Design; Time Duration of Study)	Number of Participants & Country of Study	Relationship	Standardized Summary
[2]	AnjanaMR and SeemaKS (2024)	Comparative Review	NA	Gamification was positively associated with employee engagement, motivation, and retention.	Gamification has comprehensive impacts on employee learning and improves cognitive, affective, and behavioral outcomes.
[3]	Capatina, A., Juarez-Varon, D., Micu, A., & Micu, A. E. (2024)	Mixed Method Study	110, Different European countries	Points, badges, and leaderboards positively influenced employee engagement	The authors found that gamification was useful for knowledge retention and job performance. Social interaction mediated the positive relationship between gamification and knowledge sharing. It highlighted the role of a collaborative working environment.
[4]	Boltyshev (2024)	Primary Quantitative	81	Given some conditions, a positive relationship was identified between gamification and corporate training.	The author suggested that gamification can be helpful, but essential characteristics of individuals and organizations must be considered. Strategies should be aligned with those features.
[5]	Chaurasia and Kumar (2024)	Primary Quantitative	70	Gamification positively impacts employee engagement.	The findings concluded that gamification can enhance learning and employee productivity by decreasing stress levels. However, the game elements should be chosen according to the particular psychological domain aligned with learning outcomes.

(Continued)

Table 3. Summary of results (Continued)

Serial Number of Reference	Authors and Year of Publication	Research Design (Sampling Design; Time Duration of Study)	Number of Participants & Country of Study	Relationship	Standardized Summary
[6]	Wang and Zhao (2023)	Primary Quantitative	411	A positive relationship was identified between work gamification and employees' productivity at work. It was mediated by job satisfaction.	The research study collected data from 348 companies to propose that gamification adds freshness to the work environment. The positive relationship was found to be partially mediated by employee satisfaction.
[7]	Pavlovic (2023)	Theoretical Analysis	NA	A positive relationship was identified between gamification, employee motivation, and employee learning outcomes.	The findings of this conference revealed that gamification techniques can motivate employees by creating personalized learning experiences.
[8]	Alfaqiri, A. S., Noor, S. F. M., & Sahari, N. (2022)	Literature Review	Saudi Arabia	A positive relationship was identified between game elements and employee engagement.	The authors indicated that game elements effectively improved employee engagement. The authors proposed a framework and included 9 game elements to enhance online training platforms.
[9]	Kulkarni, P., Gokhale, P., Satish, Y., & Tigadi, B. (2022)	Survey-based methodology	114, Software Development Companies, Bangalore	It was identified that game-based training makes learning more engaging and immersive.	The research identified the relationship between self-determination theory, game elements, and learning outcomes.
[10]	Wang, Y., Hsu, Y., & Fang, K. (2021)	Delphi Study, provided qualitative data also	14	Identified 12 key game elements and categorized them into 6 design principles.	The research conducted 3 rounds of expert surveys and identified 12 game items of score 4 or more in mean importance value. These 12 items were categorized as 1) game design principles and 2) game mechanics.
[11]	Iacono, S., Vallarino, M., & Vercelli, G. V. (2020)	Literature Review	NA	Proposed story-powered gamification model to maintain a high level of engagement.	Using narratives/stories can significantly influence participants' engagement in course activities. It employs a narrative and story beyond the well-known triad of points, badges, and leaderboards.
[12]	Algashami, A., Vuillier, L., Alrobai, A., Phalp, K., & Ali, R. (2019)	Multi-stage qualitative research	Not Mentioned	The research identified gamification risks and risk factors	There are performance-related risk factors, societal and personal risk factors, goal-related risk factors, gamification design-related risk factors, and task-related risk factors. The authors also discussed risk-management strategies.

In addition to drawing the summary table, VOSViewer was used to study the co-occurrences of keywords (see Figure 2) and their association with related keywords. The analysis demonstrates the relationship between three primary keywords, namely 1) game element, 2) leaderboard, and 3) corporate training, in sync with the research questions. Job satisfaction also appeared as a related keyword, highlighting the linkage between game elements and corporate training. Self-determination theory has also appeared as a keyword, demonstrating its prevalence in the literature.

However, the map does not include other important keywords such as employee motivation, engagement, and risk factors. This might have happened because there are fewer studies available. More research in this direction can provide convincing results concerning desired connections.

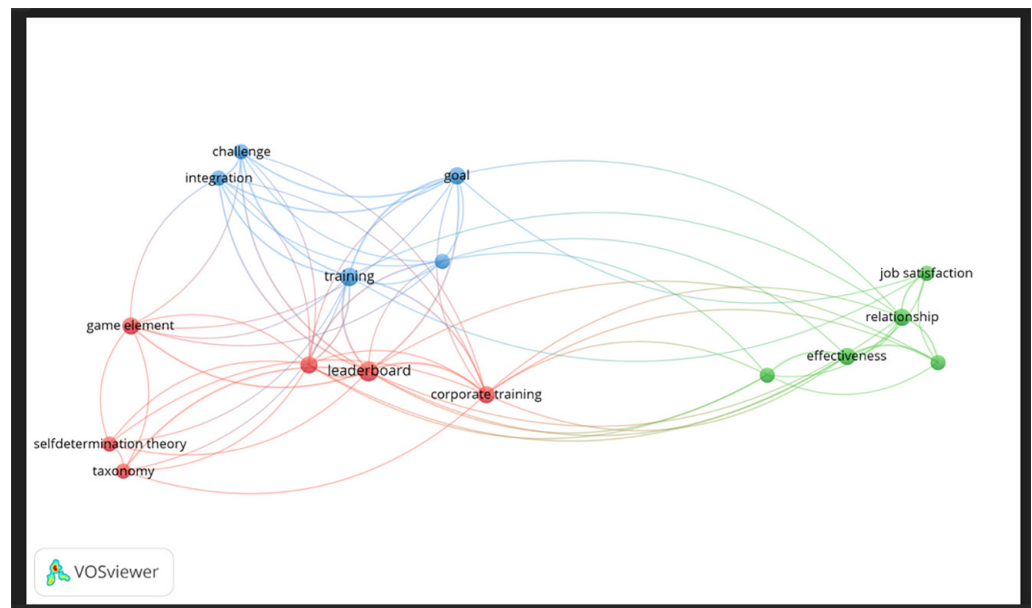


Fig. 2. The co-occurrence map

A careful and critical review of these results reveals major themes concerning research questions.

4 DISCUSSION

Theme 1 related to RQ1. The relationship between gamification and employee dimension. The literature does not reveal any contradiction in the relationship between gamification and employee dimensions. 9 out of 11 (81 percent) studies have mentioned the benefits of gamification in different dimensions of corporate training [2]–[9], [11]. 6 out of 11 (54 percent) studies asserted a strong positive relationship between gamification and employee engagement, gamification and employee productivity, gamification and employee motivation, and gamification and employee performance.

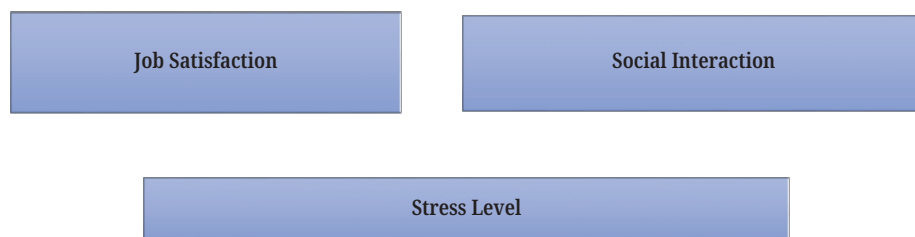


Fig. 3. Variables that mediated the relationship between gamification and employee dimensions

Scholars have also mentioned mediating factors that have guided the positive relationship between gamification and various employee aspects (see Figure 3). For example, Capatina et al. [3] have mentioned that social interactions have mediated the positive relationship between gamification and employee engagement. The mixed-method approach of this research provided a comprehensive design to ascertain the impact of gamification in corporate training. 110 participants attended gamification sessions and were found to have significantly increased their job performance and retention. Some game elements, namely points, badges, and leaderboards, increased their engagement and boosted their capabilities to implement knowledge in the workplace. The most important aspect of this study was the emphasis on collaborative work environments because social interactions proved significant in mediating the relationship between gamification and corporate training. Gamification provided a good opportunity for employees to interact, positively impacting engagement and knowledge sharing. These findings are valid and indicative of the benefits of gamification strategies that can nurture collaborative workplaces. Nonetheless, the study could have been stronger by providing a mechanism behind the positive impacts of gamification. The authors have referenced cognitive load and self-determination theories but have not framed their findings using them.

Another study by L. Wang and Zhao [6] mentioned job satisfaction as a mediator between gamification and employee productivity. Using the questionnaire method, the research explores the effects of gamification on employees' performance and states that effective gamification strategies can boost productive behavior among employees. This relationship is mediated by job satisfaction, which highlights the benefits of gamification on employee satisfaction and performance thereof. The findings are helpful because they recommend that corporate leaders and managers boost job satisfaction by employing innovative gaming strategies. It can enhance their recognition, satisfaction, and motivation.

Chaurasiya and Kumar [5] have asserted that gamification techniques reduce stress levels among employees, thereby increasing their motivation and productivity. The study has identified the positive role of gamification in employee training and development, and the findings align with a broader set of organizational learning. However, methodological limitations in the study reduce the scope for generalizing the results. The study employs a questionnaire survey approach but lacks clarity on the sampling method and the demography of the participants. The control group is absent. The author has not done any baseline comparison, failing to draw any causal linkage between gamification and improvements in learning outcomes.

Other research studies have not indicated any specific mediator, but their findings are in sync with each other. In addition to employee dimensions, researchers have stated the positive impacts of gamification in making the training more engaging, fresh, and immersive. Consequently, it improves the learning outcomes of participants.

Theme 2 related to RQ2. Preconditions to choose game elements. Two research papers have explicitly demonstrated the need to select game elements wisely for a desirable impact. Boltyshev [4] mentioned aligning game elements with individual and organizational features. Though the author has framed a broader research question, the context-dependency of selecting game elements is worth mentioning. If gamification strategies are not adequately aligned with the organizational goals, they can prove counterproductive, leading to disengagement and frustration among participants. Likewise, it should match individual goals to prevent the risk of extrinsic rewards undermining intrinsic motivation. This study mentioned three game elements, namely points, badges, and leaderboards, but failed to specify how to make game elements relevant to the context.

Chaurasiya and Kumar [5] have discussed psychological mechanisms for selecting game elements but have not furnished any theoretical disposition. The discussion, not grounded in any theoretical framework, weakens the depth of the research, limiting its academic validity. However, the significant outcomes indicate the need for further research in this direction. Making a case for non-digital games might contradict the dominant narrative in this field, but it promotes the value of team coordination and strategic thinking. The authors should have discussed these aspects in detail to enhance the academic rigor of the study. Figure 4 is showing essential features of selecting game elements.

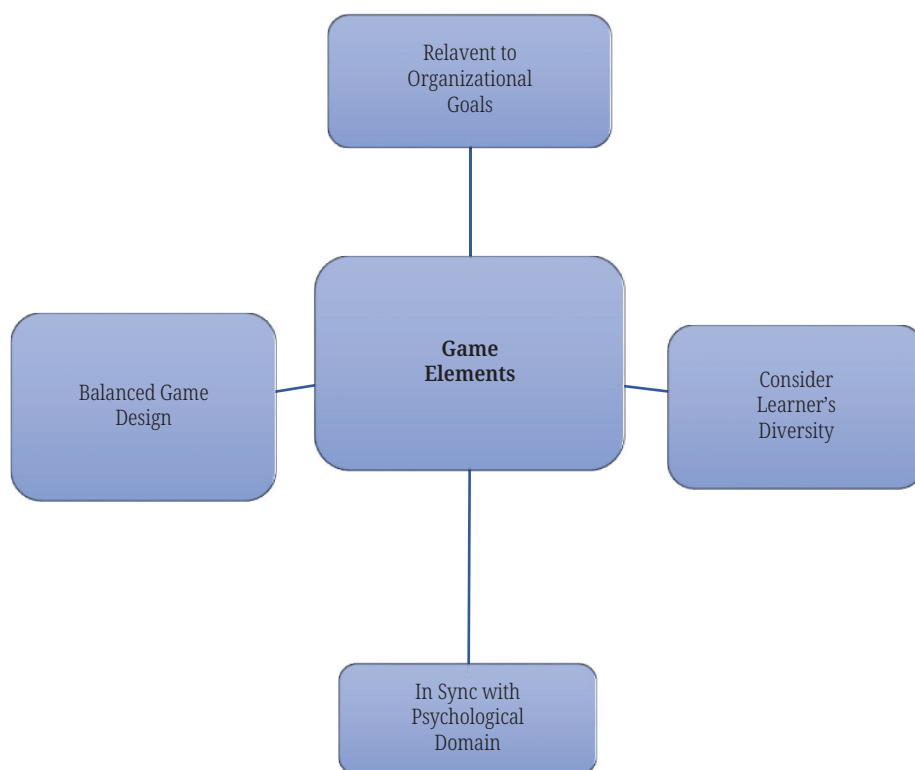


Fig. 4. Essential features of selecting game elements

Iacono, S., Vallarino, M., and Vercelli, G. V. [11], going beyond the triad of point-badges-leaderboards, emphasized the significance of narrative storytelling. The biggest strength of this research lies in moving beyond traditional game elements to include narrative design and psychological domains of learners. The authors have emphasized tailoring experiences to different levels of motivation (achievers,

explorers, socializers, killers) to accommodate various preferences of individuals. Still, the authors need to discuss how variations in gamification strategies can be made based on industry type, cultures, and the scope of training. The study has not examined the technical support for designing practical game elements.

Wang, Y., Hsu, Y., and Fang, K. [10] provided the most extensive game elements after three rounds of survey. The authors identified 12 game elements and categorized them into six design principles as follows:

1. Integration with training goals
2. Clear rules
3. Rapid feedback
4. Team competition
5. Goal-oriented challenges
6. Freedom to fail

This study's biggest strength was balancing design principles and game mechanics, which other studies lacked. These six principles provide good design strategies for corporate leaders to make gamification more effective. Concerning game mechanics, the study echoed previous results and identified points, badges, and leaderboards as the most common game mechanics. However, differing from other studies, the authors proposed different mechanics, primarily including storylines (in sync with [11]). Further studies need to ascertain the benefits of a storyline as a game mechanic because of some divergent views exposed by this review. Some experts used stories as introductions, while others used them to draw learners' attention. This aspect needs to be studied further because the sample size in this study was small. A study with an extensive sample size could have given more convincing outcomes.

Theme 3 related to RQ 3. Risk factors in using mobile gamification. This dimension has not been discussed appropriately in the literature, and only one recent study explored the risk aspects of gamification. Through multi-stage qualitative research, Alghashmi et al. [12] explored the potential downsides of implementing gamification within enterprise teamwork environments. This paper expands the discussion on gamification by examining its critical risks and limitations, drawing a shift from the traditional perspectives of its benefits. This perspective shift is vital for practitioners and scholars interested in the complex organizational systems where gamification is applied.

The authors note that while gamification has often been credited for enhancing engagement and motivation, its not-so-thoughtful implementation may generate undesirable consequences, especially regarding collaborative work in organizational contexts. In this sense, the study also indirectly highlights some prerequisites of designing gamification in sync with other authors.

Through the conceptual analysis, the authors propose a framework for the taxonomy of risks connected to gamification, which they organize into primary themes. These are the compulsive focus on competition, which is likely to erode cooperation; misalignment with organizational objectives that may draw attention away from strategic priorities; lack of motivation from game elements that are irrelevant or poorly designed; and issues of felt inequitable distributions that arise because reward systems will sometimes create resentment or disaffection among members of the same team. Figure 5 is showing the gamification risks.

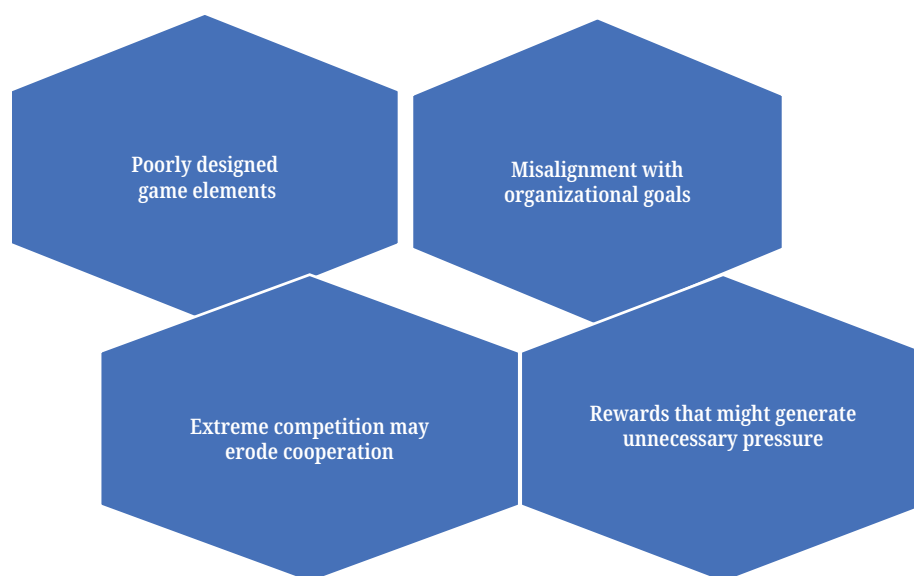


Fig. 5. Gamification risks

The authors drew from management literature to justify outlining a comprehensive set of management interventions to reduce potential risks. These include designing a game that reinforces organizational goals while fostering competition and cooperation, controlling alignment with organizational goals, and using contextual modification of gamification elements. Furthermore, the authors highlight the need for active observation and continuous adjustment to address changing team circumstances.

The article explores different implementation strategies, stressing that gamification concepts must be context-responsive and strategically targeted to achieve desired outcomes. The authors warn against applying generic framework templates and stress the importance of using evidence-based design principles for gamification in enterprise systems.

This study's most impactful finding is its unique conceptualization. Most existing literature views game elements as unconditionally advantageous, but this study demonstrates that gamification can be counterproductive without proper alignment with organizational culture or goals. It calls for more balanced approaches to assessing the impact of gamification.

Nonetheless, the study's conceptual and theoretical approaches are considered limitations. The strategies and taxonomy are created from literature synthesis and conceptual analysis rather than testing in practice. This weakens the framework's overall usefulness and practicality because there is insufficient evidence from actual implementations over time. Elia et al.'s work lacks foundational evidence to support its claims.

Moreover, while the taxonomy is coherent, its lack of qualitative or quantitative evidence severely undermines its claims. Subsequent work should provide actionable definitions of the risk factors and evaluate them using case studies or organizational experiments. The paper could expand its scope by integrating other theories, most notably Self-Determination Theory, which would be helpful to deepen the discussion on intrinsic versus extrinsic motivation. At the same time, the debate on "perceived inequity" could strengthen its analysis by incorporating organizational justice literature and exploring how fairness perceptions influence team morale and engagement. This study provides a rich platform for other researchers to empirically

evaluate the consequences of gamified systems and develop more refined motivational frameworks that incorporate collaboration, innovation, and ethical design.

5 RESEARCH GAPS

Even though many gamification applications have been incorporated into workplace training, they remain underexplored in the emerging research literature. Novel theoretical frameworks can be written about these applications, highlighting unexplored areas in corporate training exercises. These are:

1. Real-world game-based learning implementation gaps
2. Lack of personalized approach to gamification and learner differences
3. Lack of discussion on risks and implementation challenges
4. Absence of synthesis
5. Underrepresented industry and cultural diversity
6. Lack of synergy with emerging technologies
7. Lack of widely accepted evaluation models

6 CONCLUSION

While the available studies have established a positive linkage between gamified corporate training and employee performance, further research is needed to assert and universalize the findings with more impact. Considering the mediating variables and risk factors, HR professionals must design game elements that match individuals' personalities and organizational objectives, not pushing learners into a standard and rigid learning zone. Instead, game elements must embrace flexibility, self-paced learning, and motivation to make informed decisions.

Considering all these aspects, further studies are suggested, specifically on aligning gamification and its benefits with different personality types. Researchers can conduct case or mixed-method research studies to gain an in-depth overview of how companies adopt and implement appropriate game elements. The need of the hour is not to impose a one-size-fits-all approach but to adopt a tailored way to get the desired results through gamified learning.

7 REFERENCES

- [1] B. Kitchenman, "Guidelines for performing systematic literature reviews in software engineering," Department of Computer Science, University of Durham, Durham, UK, Technical Report EBSE-2007-01, 2007. [Online]. Available: [EBSE Technical Report EBSE-2007-01](#) [Accessed: May 5, 2025].
- [2] M. R. Anjana and K. S. Seema, "The impact of gamification on employee learning and development: A comparative study of traditional and gamified training methods," *EPRA International Journal of Research & Development (IJRD)*, vol. 9, no. 10, pp. 80–84, 2024. <https://doi.org/10.36713/epra18655>
- [3] A. Capatina, D. Juarez-Varon, A. Micu, and A. E. Micu, "Leveling up in corporate training: Unveiling the power of gamification to enhance knowledge retention, knowledge sharing, and job performance," *Journal of Innovation & Knowledge*, vol. 9, no. 3, p. 100530, 2024. <https://doi.org/10.1016/j.jik.2024.100530>

- [4] M. G. Boltyshev, "Research the experience of using gamification in corporate learning," *Interactive Learning Environments*, vol. 32, no. 10, pp. 7692–7702, 2024. <https://doi.org/10.1080/10494820.2024.2331635>
- [5] S. Chaurasia and U. Kumar, "Effect of gamification on employee's training and development results," *Care Group 1 International Journal*, vol. 13, no. 5, pp. 84–99, 2024. [Online]. Available: https://www.researchgate.net/publication/380517958_Effect_of_Gamification_on_Employee's_Training_and_Development_Results [Accessed: May 6, 2025].
- [6] L. Wang and X. Zhao, "Research on impact of work gamification on employee performance," *Academic Journal of Business & Management*, vol. 5, no. 26, pp. 95–102, 2023. <https://doi.org/10.25236/AJBM.2023.052615>
- [7] G. Pavlovic, "Gamification: An innovative approach to employee training and skill development," in *Proceedings of the 14th International Conference on e-Learning 2023*, Belgrade, Serbia, 2023, pp. 108–117. [Online]. Available: https://ceur-ws.org/Vol-3696/article_12.pdf [Accessed: April 30, 2025].
- [8] A. S. Alfaqiri, S. F. M. Noor, and N. Sahari, "Framework for gamification of online training platforms for employee engagement enhancement," *International Journal of Interactive Mobile Technologies (ijIM)*, vol. 16, no. 6, pp. 159–175, 2022. <https://doi.org/10.3991/ijim.v16i06.28485>
- [9] P. Kulkarni, P. Gokhale, Y. M. Satish, and B. Tigadi, "An empirical study on the impact of learning theory on gamification-based training programs," *Organization Management Journal*, vol. 19, no. 5, pp. 170–188, 2022. <https://doi.org/10.1108/OMJ-04-2021-1232>
- [10] Y.-F. Wang, Y.-F. Hsu, and K. Fang, "The key elements of gamification in corporate training – The Delphi method," *Entertainment Computing*, vol. 40, p. 100463, 2021. <https://doi.org/10.1016/j.entcom.2021.100463>
- [11] S. Iacono, M. Vallarino, and G. V. Vercelli, "Gamification in corporate training to enhance engagement: An approach," *International Journal of Emerging Technologies in Learning (IJET)*, vol. 15, no. 17, pp. 69–84, 2020. <https://doi.org/10.3991/ijet.v15i17.14207>
- [12] A. Algashami, L. Vuillier, A. Alrobai, K. Phalp, and R. Ali, "Gamification risks to enterprise teamwork: Taxonomy, management strategies and modalities of application," *Systems*, vol. 7, no. 1, p. 9, 2019. <https://doi.org/10.3390/systems7010009>

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